

# Virginia Wildlife

December 1977 50¢



# Virginia Wildlife

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Dedicated to the Conservation of Virginia's  
Wildlife and Related Natural Resources

**COMMONWEALTH OF VIRGINIA**  
**MILLS E. GODWIN, JR., GOVERNOR**

Commission of Game and Inland Fisheries

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**COVER:** Evening Grosbeaks by Sabra Kimball,  
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# Editorial

## ANIMAL IMPRESSIONS

Rudolph and Santa's Reindeer are symbolic of the Christmas season, as are cardinals and holly berries, doves and yule logs. Actually, our knowledge of and feelings toward animals are tied up with symbolism and folk lore to a greater extent than most people realize.

After he learns "Mommy" and "Daddy," a developing child's next exercise is usually to learn to recognize the animals and the sounds they make. A child's world abounds with animals in the form of cuddly toys, rattles, squawking toys, on building blocks and in books. Animals are liberally represented on most nursery walls.

Folk lore from that of the ancient Greeks to that of the American Indians is heavily laced with animal personalities, real or imagined. Our own fairy tales are a prime example of assigning human moral values to animals. We have the sly fox, the wicked wolf, the silly goose, the stupid pig, the wise owl, the belligerent billy goat, the stubborn mule, the crafty coyote and so on. When you stop and think about it, it is almost like brainwashing. Soon the toddler graduates to Saturday morning cartoons, then to Disney's fairy stories star-

ring real animals and on to Grizzly Adam's fantasy world.

As teenagers, names like pig, baboon and turkey become popular colloquialisms, with lasting impressions on their animal world counterparts. When they get their first car, they will enter the world of cougars, jaguars, impalas, foxes, rabbits and on it goes.

The world's great religions draw heavily on presumed animal personalities to illustrate points and to draw analogies for human behavior. The Bible is full of animal anecdotes used to point up the weaknesses or strengths in human behavior.

With the entire world populace subjected to all this "unnatural history," it is a small wonder many persons develop weird and warped ideas about animals. Many urban residents who have no contact with real animals maintain these fantasies throughout life. They span both sides, from those who want to love all animals to death to those who have definite fear or hatred toward one or all species. The animals are not served well by either of these attitudes. Animals are rather simple creatures and can benefit far better from the truth than from these mythical attributes we choose to give them.—HLG

## Letters

### COON CONTROVERSY CONTINUES

I would like to congratulate you on the answer to Mr. Dehart's letter. I think it is very uncalled for for him to say "so why not put the blame where it is, on the trapper. . ."

Regan Underwood  
Salem

Mr. Dehart, in other years when you could hunt coon for almost four months we didn't hear from you. This year you still get over three months and I, as a trapper, get two months. My license costs \$15.00 plus \$5.00 for small game—total, \$20.00. You get to hunt coon plus small game for \$5.00 plus four months to hunt coon.

Think it over.

Turner A. Bowen  
Middletown

(corn, hay, soy beans, etc.) orchards, young trees and damage done to farm property by deer I do not believe the \$3,806,580.00 would pay it.

Also deer do considerable damage to vehicles on the highway.

Hunters, harvesting these deer, also do lots of damage to personal property. It is no way the deer meat that is harvested in the state of Virginia can pay what it costs to produce it. Look at the cost the Game Commission put on the state to operate last year—over \$6.5 million.

Nelson Wright  
Williamsville

*The Game Commission operated at no cost to the "State"; only to the sportsmen whose license fees and taxes support our entire operation.—Ed.*

### VW AROUND THE WORLD!

I am a faithful reader of *Virginia Wildlife* and wish to tell you how great your magazine is.

I live in New Delhi, India and this magazine is like a taste of home since I lived in Virginia for almost six years.

Why, I'll bet you don't have anyone else from halfway around the world reading your magazine except the people I have introduced to *Virginia Wildlife* since I've been here.

Thanks for a wonderful magazine and keep up the good work!

Lisa Munkres  
New Delhi, India

### ANOTHER VOICE FOR CHESTNUT!

About four years ago my husband and I had been back to Elkins, West Virginia. Starting back, we decided to explore a little. A very beautiful drive down a little valley brought us to Mathias, West Virginia.

A short distance from Mathias, the hard surfaced road disappeared. The dirt road was so narrow, when you looked out the window, one was looking straight down. That is how I happened to spot the wild chestnut tree! It had a few chestnut burrs on it about the size of an English walnut.

It would be so wonderful if the native chestnuts could be revived.

Mary Day Hutton  
Mt. Jackson

### VENISON NO BARGAIN

In your August editorial you put the value of deer meat taken in Virginia at \$3,806,580.00 which may be true.

If an actual account was to be kept on the amount of damage done to farm crops





Jane Partin '77



# BUCK FEVER

by BEN FULTON

To gratuitously say that anticipation is better than realization is debatable. The old maxim would never hold for many deer hunters. For others, it would be a sometimes thing.

My brief experience suggests that enjoyment of deer hunting, as of other sports, is affected by expectation or how well, as the man says, "we cook the dish to our own appetite."

Occasionally, it's the wholesome faith of youth that piques our interest and gets us involved in new pursuits. The motivation for my limited exposure to deer hunting comes from my 17-year-old son, Ben II.

Last year his anticipation of deer hunting began the day the previous season ended. A brief outing in 1975 had hooked him. Intrigued by the breezy tales of veteran hunters, he decided to learn all he could about white-tailed or Virginia deer. His textbooks were dog-eared game magazines; his classrooms were the rolling woods and fields of the Madison District of Cumberland County.

By early spring of 1976, the boy had climbed part of the mountain, so to speak. He knew that the white-tailed buck, if taken one-on-one as they say in basketball, is far cagier than any wild animal has a right to be. Also, he had located every deer trail, waterhole and bedding area on our place as well as those on an adjoining property, thanks to the goodness of neighbor George Jenkins, a kindly man who was moved by the boy's enthusiasm. Ben wasn't ill but had a fever—"buck fever," the hankering for a prize rack.

Unfortunately, a devastating drought hit south central Virginia last summer. Farmers watched helplessly as tobacco and grain crops shriveled in the stifling heat, gasping as it were for rain. Little came. The meaning of crop failure doesn't completely register with a teen-ager unfamiliar with farming. Good fishing and growing evidence of whitetails occupied Ben's impressionable mind during most of the long hot days. The full impact of the drought came later, during the subfreezing cold and snows of last January. Bawling, hungry cattle milled about in snow-covered, barren pastures. Harrassed farmers roved the countryside looking for hay to buy. These are graphic scenes in a young life. If harsh weather deals so severely with domesticated animals, what about wildlife?

Anticipation is more than dreaming; it's doing, getting, preparing and equipping, too. For a boy on a

small allowance and a little income from odd jobs and grass cutting, budgeting for a hunting season is big finance.

The highlight of Ben's preparation came in late August when he bought a gleaming, new Remington 1100. Looking on as he counted out the bills, I could sense progress in the climb up the mountain. The incident added a new dimension to what he was doing, more maturity and responsibility. The fact that the money came from his own hard-earned savings helped.

We spent much of the late summer and early fall scouting for deer habitat and promising deer stands. Deer were in abundance. Fresh cloven tracks cluttered the area, crisscrossing in a crazy maze.

Watching wild game can be more than just a happening. It can be a learning process. As such, each viewing is like a bank deposit. It increases your principal as well as your interest. For example, the rigid, erect ears of deer blend perfectly with the golden-seeded heads of milo. The similarity can't be fully appreciated unless you're lucky enough to spot some does and fawns sunning in the grain.

Everybody knows deer are great jumpers. But there's a difference in knowing and seeing. How do you adequately describe the flowing grace, sheer power, and wild pageantry seen in the soaring vault of a startled buck?

Understanding "deer talk" is essential to the pre-season buildup. It's elementary, but a nonhunter might think a rut is a worn track in a dirt road and a rub has something to do with the way grass grows on a putting green. Ben continually bombarded me with other deer language and hunting techniques, most of which I promptly forgot much to his chagrin.

However, there's always a risk in getting to know too much about anything. Stalking a tricky buck loses some appeal if you think about it biologically. After all, what's so dashing in matching wits with a lowly ruminant?

Other aspects of deer hunting arose as the season approached. A decision had to be made on shotgun loads. We found that most hunters in the county preferred buckshot over rifle slugs. The merits and limitations of shells were discussed and studied. After some wavering, Ben chose the slug. His ability to repeatedly plink it into the "kill zone" of a target at 60 paces helped to make up his mind.

Buck season opened bright, cold and promising in Cumberland County. The weather was excellent, the

*Continued on page 15*



Laced with a rich endowment of plant, animal and geological assets and a continuously sprawling civilization, Americans have organized for protection, wise management and preservation of our remaining resources for over a hundred years. A few of the conservation efforts even date back to colonial times. The result has been a network of parks, preserves, refuges, public forests and recreation areas unparalleled by the rest of the world.

Despite all this, however, there are still vital resource areas that lie unprotected—areas inhabited by endangered wildlife or plant species, valuable wetlands and fragile tundra ecosystems, or other such unique natural communities. And there is an undeniable need to develop more natural areas to not only study ecological processes, but to preserve natural diversity for unforeseen future benefits.

Most federal and state agencies have programs to protect small unique or threatened areas. Most people are aware of this. But far fewer are aware of the private organization that has been responsible for the preservation of almost 100,000 acres of valuable Virginia wildlife habitat and forestland. In more than 25 locations in our state, the Nature Conservancy has acted quietly and effectively to gain much-needed protection for natural areas.

The Nature Conservancy is a membership organization. For a small membership fee, conservationists help support the group's preserves and acquisition efforts. The Washington-based organization has been involved in the preservation of over 800,000 acres in 47 states, along with Canada and the Virgin Islands.

The Rann Preserve located near Charlottesville is owned by the Conservancy. Also the Conservancy originally had title to the 50,000 acre Great Dismal Swamp. This area was subsequently transferred to the U.S. Department of the Interior as a National Wildlife Refuge. A small tract of land in Surry County is being

The Nature Conservancy:

## Saving Virginia's

conveyed to the Virginia Commission of Game and Inland Fisheries. The Conservancy has also transferred properties to or assisted in the purchase of land by the U.S. Forest Service, National Park Service, Northern Virginia Regional Park Authority, the State of Virginia, Town of Manassas and Arlington County.

The descriptions of the Virginia preserves read like a directory to the flora and fauna of the Commonwealth. From the cypress swamps near the coast to rugged oak-hickory

stands of the mountains, white pine stands, hemlock groves and pockets of rare plant species, the Nature Conservancy is creating a network of natural areas to preserve the state's rich diversity of resources. The Conservancy's swift efforts have protected the nests and habitats of Bald Eagles on Mason Neck, only minutes from the sprawling suburbs of Washington, D.C. The organization gives priority to areas threatened by disruption and development.

Part of the undeniable success of







# Wild Places

by DAVID A. TICE

the Conservancy's efforts lies in their ability to act quickly. An example of this is the fact that when notified by the U.S. Fish and Wildlife Service of a threatened tract of valuable wildlife habitat in Florida, the Conservancy had arranged for acquisition of the land within three hours. The area protects part of the habitat of the endangered dusky seaside sparrow.

Skilled and speedy action also figured in the Conservancy's acquisition of Virginia's barrier islands, stopping intensive development

plans at a critical moment. The Mary Flagler Cary Charitable Trust provided most of the funds for the acquisition of the 31,705 acres of islands in Northampton and Accomack Counties, the Virginia Coast Reserve. Donations of land and money by Virginia residents have helped in the acquiring of dozens of other areas. Most of the areas are open to the public for hiking, fishing and observation. Visitors should contact the Nature Conservancy for specific information on the individual areas.

The Charlottesville Rann Preserve is typical of the Conservancy's efforts. Built only a decade ago, Charlottesville Rivanna Reservoir had been threatened by pollution and siltation problems. Housing developments were being planned along the lake's banks. In 1975 local residents went to the Conservancy for help in protecting an 80-acre area at the junction of Ivy Creek and the Reservoir. Field trips to the area recorded deer, great blue herons, beaver and dozens of other animals and plant species. The Conservancy stepped in and bought the land.

Currently, as with most Conservancy-owned preserves, a committee of local resident volunteers oversee the Rann Preserve. Researching the area's history, the Charlottesville committee soon realized that they had assumed the caretaking responsibilities for more than a valuable natural area. The old farm that comprises the Rann Preserve is a rich historical landmark in the lives of Albemarle County's black citizens. The farm had been the home of the late Mary Carr Greer and her husband, a former County extension leader. The Greer's fruitful and tireless efforts to aid the black community are cherished by all who knew them. A reception was held in the memory of the Greer's to dedicate the area as a historical site as well as a natural preserve.

The Conservancy is still continuing in their acquisition efforts. To make the Bicentennial, the Conservancy created a "Land '76" program to boost preservation of historic sites.

Top priority is currently being given by the Conservancy to the fight to preserve part of Falls Ridge near Blacksburg. The Charlottesville committee is starting a drive to raise funds for the Rann Preserve.

The valuable work of the Nature Conservancy is still of vital importance. More information can be obtained from:

The Nature Conservancy  
1800 North Kent Street  
Arlington, Virginia 22209.

# Happy in their Work

by C. EDDIE PALMER

One of the numerous research questions explored in the Virginia Game Warden Survey, conducted by the Sociology Department at Virginia Polytechnic Institute and State University in 1974-75, concerned job satisfaction. Research has indicated that work activity which is oppressive yields the least satisfaction to those who find themselves dependent upon such work for their financial survival. Oppressive features to work include (1) constant supervision, (2) constant coercion, (3) lack of variety in work tasks, (4) monotony, (5) perceived meaningless tasks, and (6) physical and social isolation. The present research explores job satisfaction among Virginia Game Wardens by focusing upon the relative absence of these oppressive features.

The data were collected using a random sampling procedure which provides information from 67 Virginia Game Wardens holding the ranks of Area Patrol Leader and Regular Warden. These wardens work "out in the field" and actively implement the policies and enforce the wildlife laws under the auspices of the Virginia Commission of Game and Inland Fisheries.

Data were collected by four different research techniques: a structured interview schedule employed in the field by four interviewers; a self-administered questionnaire (Return Rate was 98.8%); the tape recording of the interview and additional conversations between the interviewer and the respondent; and direct observation.

To obtain information on job satisfaction among Virginia Game Wardens, two measurement devices were employed. One technique involved asking the wardens, "Would you choose the occupation of game warden as a career if you had it to do all over again?" The second technique consisted of obtaining responses from the wardens to an 18-item Index of Job Satisfaction. This Index consisted of a series of statements which were to be scored from 1 to 5 for each statement. (Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree were the possible responses to each statement.)

Utilizing both measures of job satisfaction, wardens were shown to be highly satisfied with their jobs. When asked if they would choose the same job again, 52 wardens (77.6%) said "yes." Five (7.5%) stated they might choose the same occupation again but were not absolutely sure. Only 10 (14.9%) said they would not choose the occupation of game warden again. These

wardens, when further queried regarding their negative responses, basically stated that they liked the work, but the hours necessary to do the job were too many and the pay too low.

The total mean score utilizing the 18 items in the Index, which had a range of from 18 (lowest satisfaction) to 90 (highest satisfaction), was 69.6, indicating again a high level of job satisfaction.

The high level of job satisfaction found to exist among wardens appears especially noteworthy when compared to other occupations. Studies have reported that less than one-fourth of a national cross-section of blue-collar workers would choose the same work again. White-collar workers and some professionals are reported to be similarly unenthused with their work. For the game wardens of Virginia, however, 77.6% would voluntarily choose the same job they presently have.

The fact that wardens are highly satisfied with their jobs could result from a multitude of factors. To obtain information on the nature of the supervision experienced, wardens were asked to indicate the extent of their agreement to the statement, "For the most part, my boss leaves me on my own." The results indicate overwhelming agreement in regard to the lack of constant supervision. Of 66 wardens responding, 5 (7.6%) strongly agreed with the above statement and 57 (86.4%) agreed. Two wardens (3%) were undecided while only two (3%) disagreed. No one strongly disagreed. The wardens interviewed enjoy a great deal of autonomy in their work.

Wardens are also relatively free from coercion. Rarely were there instances reported to the interviewers of supervisory personnel trying to coerce wardens (by verbal reprimands, suspensions without pay, or threats to terminate) into performing against their will or judgment. Additionally, of 65 wardens responding to the question "How does your immediate supervisor communicate with you?" 54 (83.1%) stated that their superiors asked, suggested or consulted with them about task implementation. Five (7.7%) mentioned that their superior gave them orders, but asked, suggested and consulted them as well. Only 6 wardens (9.2%) stated that they were ordered to perform certain duties. Coercion, then, is not an established means utilized by the supervisory personnel of the Virginia Game Commission to implement work performance.

*Continued on page 14*







# The Opossum's Unlikely Tale of Success



John Shaw  
JAN 77



by JIM WESSON, CLEVE COWLES  
and JOHN ESTEP

If you proposed to design a mammal to live and prosper for 70 million years, what unique characteristics might you include? No matter what you put together, you probably wouldn't come up with a more successful product than the opossum. This mammal is the only marsupial (pouched animal) in North America, and has survived not through specialization but through generalization. It kept company with dinosaurs and has managed to waddle through the ages in a most unchanged condition.

Not a beautiful creature, the opossum is nevertheless quite unique. Its hairless, rat-like tail may be nearly half the length of the body, and can be used as a fifth leg. Its prehensile tail can be utilized in grasping limbs, and may even support a moderate-sized opossum as he hangs upside down. In northern parts of its range, both the naked ears and tail may be missing due to freezing.

Also designed to assist in grasping is the clawless, thumb-like first toe on each hind foot. The opossum has 50 sharp teeth, more than any other North American mammal. Food run through this grinder is digested so completely that the opossum rarely produces solid scats.

Essentially a "homebody" the opossum prefers to live all its life in an area of less than 40 acres. Though his diet consists of some garbage, showing high adaptability to human provisions, it also includes such diverse things as carrion, lizards, worms, frogs, shrews, mice, grain, persimmons, mulberries, insects and other types of vegetation. For all practical purposes, opossums eat anything they can catch, find, or steal. It is not hard to imagine why their sense of taste is considered undeveloped. Of all senses, smell and hearing are probably their best.

The opossum dens in woodpiles, drainpipes and old buildings, as well

as tree cavities, burrows and other natural cavities. He goes about his business in a clumsy, dim-witted fashion, no great surprise since his brain case is unusually small compared with that of other mammals. Noted for their long life span, opossums have few enemies and can withstand tremendous physical abuse.

One aspect of the opossum's unusual behavior is its ability to "play possum." Various theories have been suggested for this phenomenon, including the idea that when under duress, nerve centers in their brain may release a chemical substance that temporarily short-circuits muscle action. Recent evidence using an electroencephalograph (a device for measuring brain waves) shows that their brain waves while feigning death are exactly the same as when in a normal alert state, indicating that they are not in a trance. All opossums do not use this technique, and it is unclear how this activity works. Whatever the case, the ruse probably causes predators accustomed to live prey to lose interest in the potential but "dead" meal.

Opossums are not unlike kangaroos when it comes to reproduction. These animals incubate their young in a marsupium (pouch). Over most of the animal's range, two litters of young per year may be expected, except in the northern areas where only a single litter is produced. Mating season begins in January and may last until September in southern states. Opossums are polygamous; the male will breed with any available female.

After gestation period of only 13 days, the young are born in an early embryonic state except for well-developed forelimbs. Blind, hairless and tiny, the 8 to 18 young could fit in a teaspoon. They immediately crawl from the womb, across the female's abdomen, and into the pouch. The female assists the young by licking a path for them to follow. The slow or late born are often

doomed from the start, as the female has only 13 teats. Competition in the pouch is rigorous, and after about 2½ months, only 7 or 8 youngsters will crawl out to hitch a ride on the mother's back. They will return to the pouch to feed, but will be on their own in a month.

The opossum is relatively free from predators. Very few appear to be killed and eaten by meat-eating birds or mammals, possibly due to disagreeable odor. They also appear relatively free of extoparasites. The normal life span of this animal may be 2 to 3 years, some in captivity living as long as 7 years. The opossum's worst enemy is probably the automobile. However, along with being a killer, the car has also helped the critter extend his range. Originating in South America, the opossum gradually spread northward. It is quite possible that the automobile has carried the opossum as far north as Ontario. Frequently pedestrian opossums are picked up by curious travelers and carried for miles, then released.

Many an exciting midnight hunt followed by roast 'taters and 'possum has been due to the opossums' characteristic nocturnal behavior. A .22, gunny sack, some lanterns, and a sweet-tracking hound are all that are needed. Opossums are classified as game animals in most states; therefore their harvest is controlled. Their fur, although salable, is usually of low market value. Opossum meat was a staple in some areas of the South during the Depression, and their fat was sought by the government during World War II for making soap.

Disliked by many and poorly understood, opossums are harmless. Their beneficial function outweighs the damage of an occasional raid into the chicken coop or an overturned garbage can. A box trap easily takes care of a problem 'possum, but they should be handled carefully because of their sharp teeth.





## ELECTRONICS

### WILL THEY FILL YOUR STRINGER?

by PHILIP HOWELL

*Reprinted from Outdoor Oklahoma*

Ever since primitive man shaped the first crude spear to secure his fish dinner, anglers have been perfecting the tools of the trade to eliminate some of the guesswork from their sport. Newest in the never-ending barrage of fishing paraphernalia is a series of electronic fish locators. Yes, even the age-old art of fishing has become infected with transistor mania. Let's take a look at some of the more popular electronic fishing aids.

The depth finder was the first electronic gadget to be adapted to fishing. It is basically an underwater eye which uses sound waves to see. Ultrasonic waves, beyond the range of fish and the fisherman's hearing, are transmitted in a cone-shaped beam from the boat to the bottom. The bottom and any objects in the water (fish, rocks, trees, etc.) reflect the sound waves back to the boat, where they are converted into electrical flashes on the face of the depth finder lines on the paper readout of a recording finder or a picture on a television screen.

Every fisherman has had the itch to peek below the surface and see where the fish he is blindly trying to locate really are. The depth finder enables him to do that to a limited extent, but more importantly, it shows the structure and contour of the bottom, which tells him where they should be.

The oxygen monitor measures the dissolved oxygen level in the water. A weighted sensor is lowered into a likely looking spot to determine whether the oxygen content is suitable for fish survival.

This device operates on the theory that fish, like fishermen, require oxygen to live and that they are attracted to water that contains a certain amount of dissolved oxygen. Too much or too little oxygen is disturbing to the fish and may eventually kill them. In water with the right amount of oxygen, fish feed most actively. Thus by finding water with the preferred oxygen level, the fisherman will be more likely to catch fish.

The electronic thermometer is similar in many respects to the oxygen monitor. A temperature-sensitive probe relays the water temperature at various depths to the fisherman. The use of the thermometer is based on the premise that feeding activity is related to water temperature and that fish favor some water temperatures and avoid others. Since fish are cold-blooded, their metabolism (life processes) is related to the temperature of the water. In cold water, fish are sluggish, their metabolism is low and their food requirements are small. But as the water temperature increases, their metabolism increases and they feed more actively to meet their higher demand for food. There is a limit, however. At high temperatures activity declines, and even higher temperatures will kill the fish. By using a thermometer to locate the preferred "comfort range," the fisherman will increase his chances of catching fish even further.

The latest electronic fishing gizmo on the market is a light-penetration-and-intensity indicator. Once again there appears to be some logical, biological basis behind this device.

A close examination of a fish's eye reveals that it has no eyelid and the size of the pupil is fixed. Consequently, the fish can neither close its eyes nor adjust its pupils to changing light conditions. This would seem to suggest that bright light blinds fish, causing them to seek shade near cover or in deeper water. Therefore, the light meter can, in theory, pinpoint the "honey holes" more precisely by indicating water with the proper light intensity.



Equipped with these four devices, the "scientific" angler should be able to analyze bottom structure, oxygen, temperature and light, thereby putting more fish on his stringer in a shorter period of time. I say should because these electronic fishing aids are based on several assumptions. First, we must assume that the effects of bottom structure, oxygen, temperature and light on fish are known and coincide with the theories behind the devices. Using this information, we must be able to predict how fish will react to these factors, and we must assume that most fish, at least those of a single species such as largemouth bass, are going to react in the same way. Lastly, we must assume that these four factors usually determine if the fish is in a receptive mood when we stick that worm in front of his nose.

Dr. Loren Hill, professor of zoology at the University of Oklahoma, has been conducting research on the oxygen, temperature and light preferences of fish. In his experiments, fish were placed in a specially designed chamber which allowed varying the levels of oxygen, light, temperature and other factors affecting the behavior of fish. The fish could move freely from one area of the chamber to another. Preferences were determined by recording the oxygen level, etc., of the chamber section in which they chose to remain.

The results of his experiments provide some interesting information for the scientific fisherman's consideration.

First of all, he found no single, preferred temperature, oxygen concentration or light level. Instead, the conditions of the water where fish were found were greatly influenced by the water conditions to which the fish were previously exposed. In a word, it's called acclimatization.

If fish become accustomed to water with a relatively high temperature, for example, they would have a tendency to remain in water at that same temperature.

It should also be remembered that fish are cold-blooded. That is, their body temperature is the same as the surrounding water temperature. Thus, fish do not have to maintain a specific body temperature as we mammals do, and as a result, they do not "prefer" (react to) temperature in the same way that we do.

Consequently, there is little merit in saying that largemouth bass, for example, prefer water at 73 degrees. In Hill's experiments, largemouth conditioned to water 79 degrees (generally considered near the upper limit of their preferred temperature range) usually moved to water at 79 degrees, when given a wide variety of temperature choices. According to Dr. Hill, "It is very difficult to pinpoint the distribution of game fish based on temperature."

There also is no precise oxygen level which will guarantee the presence of fish. As they do with temperature, fish become acclimated over a period of time to different oxygen concentrations. For example, after

four days of cloudy weather, the oxygen level of the water decreases, since sunlight is required for oxygen production by green plants in the water. If the fifth day is sunny, the fish might tend to remain in water with less oxygen, since this is the oxygen level to which they have adjusted.

Light seems to be the least dependable indication of where the fish are. In experiments conducted at Pennsylvania State University, researchers studying largemouth and smallmouth bass found the peak activity of both species took place at dawn and dusk, which traditionally have been the prime fishing times. However, at dawn, the period of greatest activity, the largemouth's activity did not peak until a bright light was turned on. The smallmouth's activity declined sharply with the onset of bright light. In addition, the largemouth had another activity peak at mid-day (bright light). When the fish were allowed to select the light intensity in the aquarium, largemouths chose bright light 60 percent of the time, while smallmouths stayed in the bright light only four percent of the time.

This suggests that fish, even those as closely related as the largemouth and smallmouth bass, react to light differently. And, largemouth are more active in brighter light than was formerly believed.

Of all the known factors affecting the behavior and location of fish, structure appears to be the most important. Game fish use underwater objects to orient themselves, to mark the limits of their territories and to protect themselves from larger predators. Whether he's after bass or crappie, the successful fisherman makes an indelible mental note of the productive drop-off or brushpile.

So what does all of this scientific information mean to the fisherman and, particularly, how does it relate to the use of electronic fishing aids?

Fish behavior is a response to a combination of many factors: structure, temperature, oxygen, and light included. In other words, an oxygen reading of 8 parts per million means nothing by itself. But if in that same section of water we also find submerged timber and a temperature well within the fish's tolerance limits, the chances of finding fish there are increased.

The depth finder is presently the most useful device to put your finger on the fish. By revealing the type of bottom, drop offs, brushpiles, old roads and creek channels, it offers the most direct indication of productive water. In some cases it is even possible to locate the fish, as is the case with schools of stripers or sandies.

In the final analysis, no piece of equipment is a substitute for the right combination of experience and luck, although electronic locators will help to season the greenhorn and polish the veteran. Still, as one old timer put it to me: "Findin' em's one thing; catchin' em's another. There ain't nothing gonna make that fish bite, if he don't wanta." But, after all, that's what fishing is all about.

That wardens have variety in their work is indicated by (1) multiple roles performed by wardens, and (2) the seasonal diversity of task accomplishment. A partial cataloging of roles played by wardens include: (1) wildlife law enforcement, (2) fish law enforcement, (3) boat law enforcement, (4) conservation activities, (5) game management, (6) fish management, (7) public relations on the job, (8) speaking engagements, (9) workshop directors, (10) accident investigations, (11) background investigation of perspective employees, (12) rescue work, (13) engineer, and (14) work foreman.

Variation in work activities during the calendar year provides additional flexibility of tasks undertaken by wardens. As the regulations concerning the legal taking of numerous forms of wildlife and fish are based upon open and closed seasons during different times of the year, for different lengths of time, and in different parts of the Commonwealth and in different locales within individual counties, the warden's work fluctuates on a number of dimensions and offers a great deal of diversity in work tasks.

As a measure of monotony in work performance, wardens were asked to respond to the statement "My

job is usually interesting enough to keep me from getting bored." The responses to this fell totally on the agreement side of the response framework. Of 66 responses, 23 (34.9%) checked the strongly agree category, while the other 43 (65.1%) indicated that they agreed with the statement.

While all occupations may involve some activities that could be labeled "meaningless," wardens are involved in ecologically meaningful work performance. When the wardens were asked a specific question regarding ecology and job satisfaction ("The opportunity to help preserve the ecology in the State of Virginia makes my job satisfying"), the responses obtained from 66 wardens reflect strong agreement. Twenty-four (36.4%) checked the strongly agree category and thirty-nine (59.1%) indicated that they agreed with the item. Two (3%) were undecided and only one warden (1.5%) disagreed. As an additional check on the "meaningful" dimension of job satisfaction, wardens responded to the statement "My work gives me a sense of accomplishment." Twenty wardens (30.3%) indicated that they strongly agreed and forty-three (65.2%) agreed with the statement. Two wardens (3%) were undecided and one (1.5%) disagreed. Taken together, these data indicate that wardens perform what they consider to be meaningful work tasks.

While wardens work "alone" on some of their patrols they are far from being either physically or socially isolated. Their vehicular mobility covers at least a whole county and sometimes stretches over the total Commonwealth. The education and public relations aspects of their jobs, are directly linked to associations with large numbers of people (when teaching a hunter safety course or speaking in a public gathering). The law enforcement duties of the wardens place them in positions of public visibility when they check licenses, boating equipment, creel limits, etc. Even when the relationship involves arresting a single violator, the job performance entails the eventual involvement with magistrates, lawyers, witnesses, court personnel, other law enforcement officers, and sometimes family members of the accused. Based on these factors, then, the work behavior of the wardens is found to be highly integrative rather than isolated.

The occupation of game wardens affords its occupants a comparatively high level of job satisfaction. This is believed to be a result of the fact that wardens are relatively free from "oppressive" features of work.





fellowship good, and expectations high. All the ingredients of a successful hunt were present and cooperating except one—the white-tailed buck. First-year fawns and does bounced and darted in and about the woods and fields and across the back roads. But nary a buck!

After a few hours of this disconcerting tease, I expected to spot a crude calendar on the side of a big tree and find that a buck spike had been used to circle the opening date. Obviously there had been a leak. Someone had tipped off the bucks. How else could a patently co-ed deer range suddenly become bereft of the antlered creatures?

It doesn't matter that such frustrations are common, they're still vexing. Think how police feel when they raid a gambling joint and find everybody holding hands and singing rounds. Ben accepted the poor start with manly mein. As it developed, his day wasn't a total loss; it just seemed that way.

In midafternoon while crossing a fallow field of brush and orchard grass, he jumped a big buck. All the proud beast showed him was a disappearing rump and a hoisted white flag. He had not shot.

To a hunter, I suppose nothing is more foreboding than the coming of darkness on an unproductive day. And when that day happens to be the first of buck season the gloom is heavier. But hope lives strong in the breast of the young. The boy didn't give up.

As daylight faded, he took a stand in a sage patch behind a clump of poplar bushes 50 yards from the woods. He waited, his eyes and ears straining to detect any movement or sound of deer. Shortly, a full-racked buck, nostrils flared and head high, ticked his way stealthily out of the trees and headed slowly toward the poplars. Cautious as he was, the buck didn't yet know that an eager young hunter waited behind the bushes, a danger he had successfully eluded all day. Likewise, watching in the opposite direction, the boy didn't hear the silent advance of the deer. The buck was spooky and uncertain, but minced his way nearer, first 20 than only 10 yards away.

Suddenly, a sixth sense or perhaps a snapped twig triggered Ben's cerebral gong. Instinct took over before he had time to think. He quickly turned his head and shoulders.

For a scant split second, the boy and the buck were eyeball to eyeball. Suffice it to say, the buck wasn't indecisive. He took instant remedial action to correct what he inately recognized as a comprising situation. In unison, he snorted, bolted vertically, laterally, and reversed direction before touching down 20 feet away. Up whipped the white flag, and he was gone. The butt of the Remington got to the boy's shoulder, but that was all.

Out of sight and in the safety of the trees, the buck stopped. Mad and indignant, he snorted and pounded



the ground with his front hoof momentarily and then fled.

Ben unloaded the gun and trudged back to the lodge as night settled among the pines and hedgerows. Opening day came to a close. Discouragement can be a lonely burden. It's been said that "disappointment tracks the steps of hope." Indeed it does, but the trick is not to let it catch up. Later, George Jenkins perked up the boy's spirits with some lively yarns of his near-misses and "skunks" over the years.

While eyeballing the buck, Ben had glimpsed the top of the mountain. With luck and perserverance, some day he'll outwit a trophy buck. Meantime, as rewarding as that experience may be, will it be as "good as it seems beforehand?" Will it surpass the anticipation, the exhilarating adventure of "cooking the dish to our own appetite?"

In regard to the theory that anticipation is better than realization, Ben told me, "Dad, I don't see how they could feel that way if they ever had 'buck fever'." The boy may have a point there. Not a rack, of course, but certainly a point.



by S. H. PARSONS

I used to fish when it was so cold that the eyelets on my rod would freeze. I would then have to fumble, with numbed fingers, in my pocket for a penknife and chink the ice loose. Sometimes I would cut my line during the process. Trout in the creel or the hope of trout to come always made up for adverse weather and conditions. Battleship gray skies, sifting snow, swirling wind down the collar, slick rocks and cold face, paled in consequence when a nice native flopped for a few moments on the snowy ground. Colors from the fish commanded attention, made the bleak bank it lay on seem not so cheerless.

Now I'm not so crazy—or not crazy enough. I usually won't venture out if it's below freezing, but I do enjoy trout fishing on the many winter days that it stays above the 32 degree mark.

Trout are cold-water fish. They will feed year round and are not apt to become as sluggish or dormant as many other species during the winter. Water temperature is the key to their feeding habits. Using a dry fly, for instance, when water temperature is below 50 is as senseless as waiting for a rooster to lay an egg. Trout feed less in water below 50 as they're uncomfortable and go deeper, near the bottom where the water is warmer and the current not as strong. When water rises above 70 the trout once more becomes uncomfortable and again will seek deeper areas, or where springs feed into streams. Optimum water temperature for the brook trout, for example, according to Canadian research is 59 degrees, although he can tolerate water 10 degrees higher.

A water thermometer is a valuable tool to the trout fisherman. Knowing the temperature is knowing what kind of offering to serve whether dry fly, wet fly, bait or spinner.

Mountain fishing during the cold months has a beauty only a few enjoy, for only a few go. It's quiet, remote, isolated—the streams seem

reserved just for you. Occasionally you might see a hunter, but rare it is to run into another fisherman. However, the trout are still there. They haven't gone south for the winter.

Brook trout, native to Virginia as well as other eastern states and parts of Canada, require colder water than the successfully introduced brown or rainbow. They have been pushed farther and higher into secluded mountain regions due to developments, cutting of timber and clearing land, sedimentation; all factors raising water temperature and reducing purity of water. The brookie needs well-aerated, clean water. Although the brook demands a higher standard of living than other trout they are one of the easiest to catch, if the angler takes the necessary precautions not to spook them. The brook is wary for he has many natural enemies besides man. Included are water snakes, minks, raccoons; all desire to sample the delicate sweet taste he offers.

Winter allows the serious fisherman some elbow room on stretches of water he has never properly worked due to constant traffic stirring up the water and putting the trout down. The fly fisherman can use suitable weighted nymphs to get low in the run or flies such as the Double Renegade that give the impression of a minnow when twitched through the water; the ultra-light advocate can call on a variety of good spinners; the bait angler can go to a compost or manure pile and find lively red worms or use creek minnows.

Holdover trout in stocked streams are wiser than when first planted, but can be accomodating when the fishing pressure is off. Stocked streams and rivers usually run through some farm land or bottoms that offer more feed from not only aquatic but terrestrial insects. Unlike the mountain creeks grasshoppers, crickets, worms and larger hatches of insects are available on these streams. The fish have more area to roam, more minnows and chubs and fry to feed upon.

Not long ago, a mild winter allowed some excellent January stock fishing. I was in the Piney River area working a well-fished stream with long thin spinners and very light tackle. From where I stood I could see the bottom of the creek without my shadow stretching across the water. Several times that afternoon, as I fluttered a spinner, I watched trout race from their hide-out and grab the lure. The fish did not seem as quick, as if the coldness slowed them, but they hit with such beauty and form that it still excites me to think of that day. I kept two rainbows for supper and to a trout man in middle of winter, it was a memorable meal.

Some of the lakes (Peaks of Otter for example, which requires artificials, single barbless hooks only, two a day limit) are productive in the cold months and house huge trout. I have seen trout over 4 pounds taken from the lake. During the spring, summer and early fall, most lakes are heavily fished by tourists hoping to catch a fish. The trout get smart and wary and shy away from the various hardware plunking around them. But as pressure decreases so do the trouts' defenses. I have caught nice trout when the lake was fringed by a collar of melting ice by using a good

# Winter

wet fly or nymph on the end of a leader attached to a clear water-filled plastic bubble. The bubble gives you distance for casting and keeping the fly moving.

Good sense, smart fishing and a few precautions is the combination for enjoyable and successful winter fishing. I carry plenty of matches in a waterproof metal holder so in case of emergency I won't freeze, a change of heavy socks and extra shoes. Since I have poor balance I use a wading staff when crossing swift water. If

VIRGINIA WILDLIFE





# Trout

you use hip boots or waders, grind the tread off and cement a stiff piece of carpet to the soles. This will give you much better footing on slick and icy rocks and stream bottoms.

A winter outing, working around the weather instead of avoiding it, could result in a second pleasure when fresh trout rolled in cracker meal and fried in butter soon grace your table and taste—even if the snow begins to fly by the time you get home.

Mountain trout feed mostly on

DECEMBER, 1977

aquatic insects with nymphs comprising much of their diet. The rocky sparse mountain soil allows little other edible material to be washed in. Food is rarely abundant so the brookie feeds voraciously when he finds it. Mature fish often run only 6 or 7 inches long as the amount of food correlates amount of growth. Not long ago on a cold day, about 35 degrees, I stuck a timid hand in the chilled water of a favorite native stream. I raked out some gravel muck and leaves and found some active but shy stonefly, dragonfly and Mayfly nymphs. I'm sure if I had continued to look and desired further abuse to my extremities I would have located other nymphs, hellgrammites, caddis worms, crawdads, etc. The water temperature averaged 38 degrees and I wondered how

often a nymph lost its hold this time of year and swept to some hungry trouts' delight.

Trout have a lean and hungry look during the winter. They're not actively pursuing bait so the fisherman must stay close to the bottom whether using live bait, artificials, nymphs or spinners and he must fish persistently. Trout will mouth a bait instead of smacking it as they do in the warmer months, so keeping a finger on the line will telegraph bumps of fish that ordinarily might be ignored as snags.

Once I was fishing a usually productive stretch of water near Blacksburg. There were about 4 inches of snow on the ground. I caught a few trout in some long runs that received a lot of sunlight, but after moving

*Continued on Page 21*





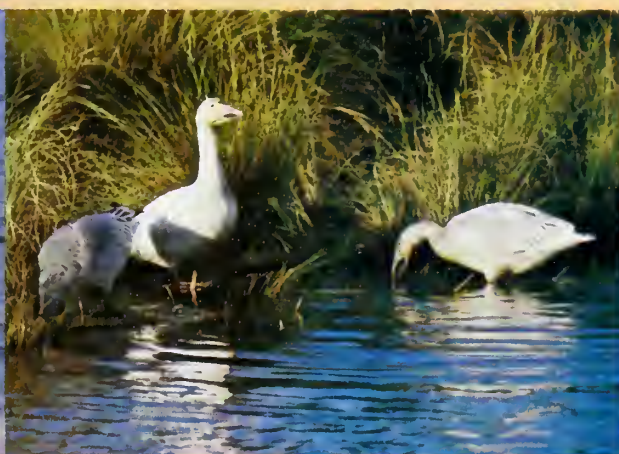
# The Winter Marsh

*Being in the marsh is almost a reversion to a more primitive, basic world. It is a healthy feeling. It restores a natural balance in our lives and points out for us our niche among other living things.*





**Text and Photos by Curtis Badger**



*In winter the marsh neighborhood changes. When the winter birds come in my pulse begins to quicken. There's a special excitement in sharing the marsh with these birds that have come from thousands of miles away, flying along their well known route from Canada and the arctic.*



*I like being in the marsh with Bear, my black lab (above). There is a special joy to be found in walking on crusty marsh mud that is frozen just to the point that it won't give under my weight (right).*



by ELIZABETH MURRAY

Photographs by PAUL MENGEL

Everybody knows the white-tailed deer. It is distributed throughout North America, occurring in every state except Alaska and possibly Utah. Its range extends north into Canada and south through Mexico into Central and South America. Normally it has a reddish-brown coat in summer and a dark grey or greyish-brown one in winter. The underside of the tail is white and the fawns at birth are spotted.

However, when Paul Mengel, a student at the University of Virginia, looked outside one day last fall, he was confronted by the animal shown here in his photographs. He was looking at a white-tailed deer, but it was an albino white-tailed deer, a form in which all pigment is absent. Instead of being merely white-tailed, the deer is totally white.

The albino form, which occurs in many mammals including man, differs from the normal form in only one genetic factor. To understand this, a brief explanation is necessary about the way heredity operates.

The chromosomes which carry the hereditary material, or genes, occur in pairs in each cell of a mature animal. For every character under simple control there are two genes, one on each chromosome of a pair. When one of these paired genes is dominant and one is recessive (or when both are dominant), the resultant character which we see is the expression of the dominant gene. For a recessive character to show up in the animal, there must be two recessive genes, one on each pair of chromosomes. The dominant gene is absent and the animal is said to be homozygous for the recessive gene. This is the condition in albinos. The deer in the photographs is homozygous for the recessive controlling pigment formation and hence coat color. When expressed, this gene causes failure of all pigment formation and the animal is an albino.



# White Deer:

## A Surprisingly Common Phenomenon

When the dominant gene is present, the albino gene is not expressed and the animal has a normal coat color.

The chemical mechanics behind albinism are surprisingly simple. In the normal animal there is a substance called tyrosine which goes through a series of chemical reactions, controlled by an enzyme called tyrosinase, to produce a dark pigment called melanin in special cells, melanocytes, in the skin. Everything is present in the albino animal, even the melanocytes, except the enzyme tyrosinase. By failing to form tyrosinase, the albino gene effectively cuts out the production of all pigment in the animal.

One place where the pigment is sorely missed is in the eye. Normally,

the retina is pigmented. The pinkness of the albino eye merely comes from the blood vessels of the eye. Vision is impaired, and the albino deer cannot tolerate the same intensity of light as a normal animal.

A white deer has other disadvantages too. The normal coat color is much less conspicuous against the background vegetation, and deer depend partly on camouflage for protection. When mildly disturbed, a deer frequently slinks off into the underbrush with his tail down, white underside not showing, and relies on the cryptic coloration of his coat to hide him. When alarmed to the point of flight, the tail is raised, displaying the white underside like a flag, while the animal bounds away with a char-



acteristic slow, bouncing gait. Only when pushed still further will the deer put his tail down again, abandon the slow bouncing gait and run just as hard as he can go. Drs. Hirth and McCullough from the School of Natural Resources in Michigan have investigated the exact purpose of the tail-flagging behavior and have concluded that it serves mainly to keep the group together, a performance which is beneficial for the group when threatened by a predator. In other words, it acts as a signal to the group that they are starting to take flight. If the flight develops in real earnest, the signal is abandoned and each deer concentrates on running as fast as possible.

An albino deer cannot benefit in the same way from this behavior since his white coat makes him more conspicuous at all times. He may show the same behavior but it will not do him as much good. Albinos are usually seen by themselves. Probably they are not acceptable as members of a group and hence, for two reasons, are more vulnerable to predators, such as wolves and mountain lions where these occur, and of course, to man.

Close scrutiny of the head of the deer in the photographs reveals the two little knobs which tell us that he is a young buck, probably one or two years old. In *Odocoileus virginianus* only the bucks have antlers. These are shed in the first couple of months of the year and the new ones start to grow in April or May, becoming fully

hard by September when the velvet is shed. The white deer here is still in velvet.

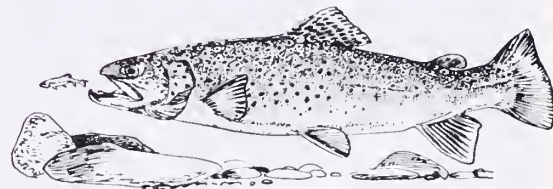
Although they are primarily a woodland species, white-tailed deer occupy a wide variety of habitats. They do not migrate but they are capable of a certain amount of seasonal wandering in search of the best feeding areas. In places where the winters are cold, they tend to remain in deep woods during the cold weather, feeding on woody plants. In the spring they will move out more into open country, feeding on herbaceous vegetation as it starts to grow.

White deer are delicate and unusual creatures and have been revered in legend and history. Many early tapestries show white deer, often being enthusiastically hunted. The White Hart must be one of the most popular names for an English inn, and there is always a fine, painted sign showing a noble albino beast.

Unfortunately, when the recessive gene for albinism is "unmasked," other deleterious characters may also be expressed. Besides their poorer eyesight, albinos are more susceptible to disease, are less vigorous than normal animals and have in general a reduced viability.

Paul Mengel's deer certainly does not show any weakness in the photographs. He is a fine young buck and looks in very good condition. Let us hope that he stays that way for years to come and gives us more chances to observe him as he grows.

*This picture illustrates how easily seen the white deer is in natural cover.*



*Winter Trout, continued from page 17*

into a dark area of timber, and fishing for a long period with no results, I was about to give up. Convincing myself to try a few more spots I came upon a bend in the creek where a feeder spring flowed into it. I immediately caught two fish from that location, but once I moved I received no more strikes. The situation was puzzling and it wasn't until later that someone enlightened me that probably the feeder spring kept the water temperature warmer and more constant in that particular pool and the trout were actively feeding. Springs have a consistent year-round temperature.

Many a bright clear day pass before the fisherman who has cleaned and oiled his rods and reels and put them away not to be disturbed until Opening Day in April. His thoughts of trout cannot be put away. Some of the best fishing untruths ever heard were spawned during the cold months. Thinking of fish and talking fish is pleasant but doing it is pleasure. Winter doesn't have to hold back the trout fisherman.

Cold weather allows the fisherman to select choice locations and pockets on his favorite stream that are hidden or unaccessible during the warmer days. It affords the time to catch some nice fish that become spooky in the summer due to increased fishing pressure. Also there is never the problem of biting or stinging insects, poison ivy, lightning striking, or someone wading through the middle of the best holes.



# Wildlife

Edited by Mel White



*Game Commission Chairman John Randolph (l) presents an award to Ralph Weaver in recognition of his services as Chairman of the Commission.*



*Dr. Gerald H. Cross, left, Head of the Department of Fisheries and Wildlife Sciences at VPI SU accepted the painting of Dr. Henry S. Mosby which was donated to the school members of the faculty in the School of Forestry and Wildlife Resource, former and current Graduate Students in the Wildlife and Fisheries programs. Creator of the painting is Jo Pienkowski, on Dr. Cross' left; on the right is Dr. Henry S. Mosby who retired from the department on June 1, 1977 after 40 years service.*

Prints of John Taylor's owl are now being offered for \$4.00. The prints measure 9" X 12" and are also available matted for \$6.00. For prints and an attractive brochure of other art work contact, Heritage Arts, Rt. 1, Box 175A, St. Michael's, Maryland 21663.





# Kaleidoscope



*Chester F. Phelps, Executive Director of the Virginia Game Commission, is shown receiving a special award from Peter Rowe, President of the Virginia Wildlife Federation.*

*PHOTOS BY F. N. Satterlee, Information Officer, Virginia Game Commission*



*Rodger Rowe, Game Warden of the Year, (l) receives a special award from the Virginia Wildlife Foundation. The award is presented here by Peter Rowe, President of the Federation.*

*Lt. Lewis Brandt, (r) receives a certificate of merit from Virginia Wildlife Federation Vice-President Walter Leveridge. The award is for the TV program VIRGINIA OUTDOORS.*



*Prints of last month's cover, the Fox Squirrel, available from Ralph J. McDonald, Countryside Studio, Gallatin, Tennessee.*



by JOHN BEARD

"Oh no! There's that tree again. I've made a big circle. I can't find my way out. I'm lost!!!"

Sound familiar? To many of us who spend a good deal of time in the woods, this situation is not unknown. As the number of hunters, fishermen and hikers increases, so also the number of "temporarily misoriented" outdoorsmen is on the rise.

Although the prospects of being lost are not pleasant to reflect on, we owe it to ourselves to consider for a few minutes how we would react if the situation arose. Such forethought will help quell the panic that might otherwise cause us to react foolishly or haphazardly.

The following 10 situations will mentally simulate several survival conditions. Try to think through them and decide what you would do. As in all survival situations, COMMON-SENSE is the key word.

1. You realize that you are in an area that is unfamiliar to you. You're lost. Do you:
  - a. Push on ahead.
  - b. Stop and try to figure out your position.
  - c. Retrace your steps.
2. You're high in the mountains as thick, foggy clouds roll in and engulf you. Do you:
  - a. Stay put until the weather clears.
  - b. Take your bearings and move a few feet at a time.
  - c. Follow running water downhill.
3. As the autumn night is approaching, your fishing boat overturns. Do you:
  - a. Grab a life-vest and float.
  - b. Grab a life-vest, hold onto the overturned boat and wait for help.
  - c. Swim for shore.
4. You're out in the snow and you think your fingers are begin-

ning to get frostbitten. Do you:

- a. Build a fire and warm your fingers.
  - b. Push hand into crotch or armpit area.
  - c. Rub hands with snow.
5. When you left camp, it was cold and clear. Throughout the day, much snow has fallen and it's brightness is blinding you. Do you:
    - a. Rub grease, chocolate, charcoal, etc. under your eyes.
    - b. Make a face shield with horizontal slits for eyeholes.
    - c. Make a visor.
  6. You're 4-wheeling through the mountains when an electric storm comes in. Do you:
    - a. Hide under a tree.
    - b. Hide under a rock ledge.
    - c. Stay in vehicle.
  7. In an outing trip you're bitten by a copperhead. You're 15 minutes from camp and camp is about an hour from medical help. Do you:
    - a. Cut open the bite and apply suction.
    - b. Put on constricting band and cold pack.
    - c. Drink alcoholic beverages to neutralize venom.
  8. While ice fishing, you walk across a thin spot and break through the ice. Do you:
    - a. Relax and breathe from layer of air under ice.
    - b. Float until rescued.
    - c. Kick upward and try to get back on top of ice.
  9. A careless hiker has started a forest fire. As you move out, smoke blinds and chokes you. Should you:
    - a. Run from the fire as fast as possible.
    - b. Climb a tree.
    - c. Crawl away.
  10. You find it necessary to cross a mountain river which is chest

# Test Your Survival

deep. Do you cross facing:

- a. Upstream.
- b. Downstream.
- c. Across stream.

OK. That wasn't too rough. In fact, getting mentally prepared for being lost is relatively easy. To be truthful, it's just as easy to be physically prepared for being lost by gathering a few, easily available odds and ends to make a survival kit.

Survival kits are as varied as the individuals who carry them. A survival kit can consist of anything from a knife and a piece of flint to several commercially available units which contain enough equipment to homestead in Canada.

Your kit should be tailored to your own needs. If lost, are you in an area where you should stumble onto a road within a day or two? What time of year would you be using your kit? Are you in an area of pure water? Are there any natural hazards (deep pits, quicksand, etc.) to contend with? The following are suggested items for a "ready-for anything" personal survival kit:

- 1) Flint and steel
- 2) Snare wire
- 3) Signal mirror
- 4) Small compass



# I.Q.

- 5) Fish and snare line
- 6) Fish hooks
- 7) Matches (waterproofed)
- 8) Candle
- 9) Wire saw
- 10) Broadhead arrow
- 11) Salt tablets
- 12) Sierra cup

If you choose to carry a survival kit, keep it tucked into a pocket where you'll always have it. A survival kit left back at camp or in a tacklebox that sank when the boat did will do you no good.

Finally we come to the most important point of survival! Careful planning of your hunting, fishing and camping trips will result in not only a much more enjoyable vacation but a much safer one. Topographical maps of the entire state are available from Virginia Division of Mineral Resources, Box 3667, Charlottesville, Virginia 22403. Learn to read maps and follow directions. Stay on paths you know. Don't depend on your memory to bring you back through unknown territory. Be safe.

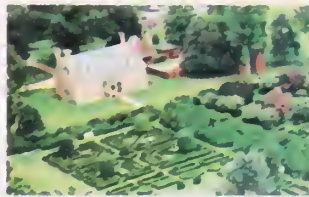
If you do get lost, stay cool. Relax and think through your problem. It won't take long to find your way out. Use your common sense and take a tip from the Boy Scouts. . . . BE PREPARED.

Answers:

1. To (a) push on ahead would only result in getting you more confused. It is best to (b) stop and try to figure out your position and to then (c) retrace your steps.
2. If you (c) follow running water downhill, you may find a waterfall which could prove fatal. While it is better to (b) take your bearings and move a few feet at a time, it is best to (a) stay put until the weather clears.
3. While it is imperative that you grab a life-vest, you do not want to simply float around (a). You would only make it difficult for rescuers to find you. If you are close to shore, know the underwater terrain and obstructions, and are a good swimmer you may wish to (c) swim for shore. The best solution is to (b) grab a life-vest, hold on to the overturned boat and await help.
4. If you (c) rub hands with snow you will increase the possibility of frostbite and will do abrasive damage to your skin. If you (a) build a fire and warm your fingers you will most likely do serious burn damage to your hands as you will not feel the burning of the skin until the damage has been done. The best thing to do is to (b) jam hand into crotch or armpit. These two areas are the warmest spots on the body and in them, the hand will gradually warm without further damage.
5. To (c) make a visor would be useless. The brightness is from *reflected* sun. To (a) rub grease, chocolate, charcoal, etc., under the eyes would reduce a good deal of the reflected rays but to (b) make a face shield with horizontal slits for eyeholes would reduce the greatest amount of sun rays.
6. If you (a) hide under a tree, lightning may strike that tree and that could be fatal to you. If you (b) hide under a rock ledge, lightning may hit the ledge (it happens fairly frequently), arc to the ground and kill you. Your best bet is to (c) stay in the vehicle. Your 4-wheeler is well grounded and, should lightning strike it, you would be relatively safe.
7. Being only 1¼ hours from medical help, you would cause yourself much useless pain and trouble if you (a) cut open the bite and apply suction. To (c) drink alcoholic beverages to slow down the venom would be foolish as alcohol speeds the effects of venom. You should (b) put on a constricting band and cold pack (if available) and calmly make your way back to camp and to medical aid.
8. If you plan to (a) relax and breathe from layer of air under ice you're in for a surprise. The shock of cold water will make it difficult for you to breathe at all. If you (b) float until rescued, you should hope for a quick rescue—you can't expect to stay alive for more than 20-25 minutes in icy water. If you (c) kick upward and try to get back on top of the ice, you'll have a chance to survive to fish again.
9. If you (b) climb a tree, the smoke will be much worse (as heat causes smoke to rise). If you don't die of smoke inhalation, you may be burned to death. If the smoke is light, you may choose to (a) run from the fire as fast as possible. However, if the smoke is heavy, running will only increase smoke inhalation. Therefore, your best bet is to (b) crawl away as the good, breathable air is down low at shin level.
10. If you cross facing (b) downstream, you let the water push into the full plane of your body which could cause you to lose your balance. Also, you are unable to see any floating logs which could hit you. Facing (a) upstream is better as it allows you to see floating debris but you still give too much body surface for the water to push against. For the most safety, you should cross (c) facing across stream (keeping an eye upstream for floating debris).



Inside the front door at George Mason's colonial home, Gunston Hall, hangs an antique bird cage containing a mockingbird—a mockingbird that fell into the hands of a taxidermist many long years ago. One day I noticed an eight-year-old boy staring at it sadly. He looked up at me and quietly said, "I could never cage a mockingbird."



*Gunston Hall*

Just the thought of confining a mockingbird in a cage enrages the nature lover today, but it was common practice in colonial times. Thomas Jefferson was a passionate lover of mockingbirds and had one for a pet in the White House, or the President's House, as it was called before the Virginia sandstone had to be painted white after the British burned it in 1814. Jefferson would open the cage and allow the bird to fly around the rooms. The bird would sit on his shoulder and sing to him, stopping only to take food from the President's mouth.

George Mason was 64 years old in 1789, the year his friend and neighbor, George Washington, became our first president. Mason was very proud of the young state of Virginia, and well he should be. He had been a champion of freedom for the new nation, the author of the Virginia Declaration of Rights; and his state's first constitution had been chiefly his work. He loved everything about Virginia and especially its wildlife. Mason sent many live birds and animals to his son, John, who was living in Bordeaux, so that John might astonish the French with these "Curiosities."

"We have had a Mocking-Bird for you, ever since last Summer; which is quite tame and domestic; and intended to send it out this Spring; but it proves a Female, and they seldom sing; this hardly attempts a single note; and therefore we shall not send it abroad, to disgrace its native Country. I wou'd turn it out of the Cage, but I am afraid its Liberty, after such long confinement, wou'd only make the poor thing a Prey to the first Hawk, that came its Way. We will endeavor to raise some young ones this Summer."

In another letter to John Mason his father mentions "three red Birds, we had kept a long time for you, have lately died." Small wonder! The children on the plantation made pets of anything that breathed and moved. Besides birds they caged squirrels, chipmunks, rabbits, raccoons, and even mice so they would be available when they wanted to play with them. Some opossums were soon on their way to France.

"Your Brothers sent you, by Capt. Rose, two Female and one Male Opossum; one of the females has some Appearance of pregnancy; tho' it cou'd not certainly be distinguished; if this shou'd be the Case, you will have a natural Curiosity; which contradicts the received Opinions, &



*Here the Barn-Wharf Trail resembles a Christmas card.*

## To Cage a Mockingbird

by JEANNE PRICE  
Photos by JOHN PRICE

will puzzle the Naturalists. Shou'd neither of the females prove with Young, if one of each Sex arrives safe, they may perhaps breed in France; tho' they are the Natives of a more Southern Climate; being much more plenty in the Southern, than in the northern parts of Virginia, & still more plenty in North Carolina. Those which were sent you had been so lately caught, that I fear they have not survived the Passage; and if they have, it may be difficult to tame them thoroughly. We have now got a female Opossum, who is too far

VIRGINIA WILDLIFE



advanced in her Pregnancy, to bear a Sea-voyage; the Young ones being almost ready to drop off the Teats, as they are vulgarly (and I believe erroneously) called. We intend to keep her, until she has raised her Brood; I expect they will be perfectly tame, & when they are sufficiently grown up, we will send you some of them; which will give a fair Chance of their breeding in France. As we have the old female from a pretty early State of her Pregnancy, & the progress has been, and will be attended to, I will hereafter send you my Conjectures upon this extraordinary Mode of Generation, so different from that of other Animals, that the face is neither understood or believed in Europe."

In a fenced park below his pleasure gardens, George Mason kept a herd of native white-tailed deer. He and his friends thinned them out occasionally when needed, but protection of wild deer interested him very much. In 1723, the Virginia General Assembly had outlawed the killing of deer between January 1st and August 31st as a conservation measure. How his blood would boil when people disregarded this law! The Justice of the Peace for Fairfax County could count on a letter like the following:

"Dear Sir.

There has been such shameful Havock made of the Deer during this Snow, when the poor Creatures cou'd not get out of any Body's Way, that I hope the Magistrates and Gentlemen of the County will think it their Duty to make an Example of the Offenders; and as I understand many of them intend to avoid half the Penalty by informing against each other I now make Information to you against such Offenders as have come to my Knowledge; a list of which with the Number of Deer kill's by each Person, you have on the other side; so that if any of them shou'd inform agst. their Comrades, their Scheme will be disappointed by my prior Information."

Here is an account of one animal that did not make it alive to France. Again George Mason writes to his son John: "Capt. Chilton will deliver you a beautiful little Fawn Skin. We caught the doe in the Creek, & were endeavoring to tame her, but she died, & the Fawn was taken out of her Belly, about a Fortnight, or three Weeks, before it came to Maturity."

Some thought a fox made an interesting pet. Philip Fithian, the tutor for the Carter children at Nomini Hall, wrote in his Journal in 1774,

"The Postillion keeps a fox at the Stable & I am often much diverted with his Cunning Tricks. The other Day, Mrs. Carter was lying in the long room among the Books on the Couch; In jumps Reynard, through a broken Pane of Glass, & begins to frisk and hue about the Room like a Bedlam."

If George Mason were to return to his beloved Gunston Hall today he would find the descendants of those same birds and animals he knew in the 1700's. Today, however, there is a great difference in the way one shows one's affection and admiration for the Plantation's wildlife. No caged birds or animals—all are free to go about the forests and fields of Mason's Neck and beyond.

Gunston Hall is owned by the Commonwealth of Virginia now, and besides the famous mansion and renowned gardens, nature lovers are provided a bonus attraction. The Division of Parks of the Department of Conservation and Economic Development has created a trail on the old Barn Wharf Road that Mason used for rolling his hogsheads of tobacco down to the Potomac for export to England and France. Summer, winter, spring and fall it is one of the most enjoyable woodland trails to be found in Virginia.

The path rambles down the high hill on which the gardens and mansion are situated and crosses the open pastures of the old deer park. Today the white-tailed deer roam the 556-acre estate and no gun is raised against them. However, as in colonial times, the famous English boxwood hedges surround the flower beds in the garden to discourage the deer from browsing the flowers. Somehow, they know the boxwood is poisonous to eat—perhaps the odor deters them—and they leave the formal gardens undisturbed. They do nibble and rub their antlers on the young fruit trees, but that's a small price to pay for a glimpse of their beauty.

Moving on, the trail passes over rustic bridges on numerous streams and eventually one reaches a high path overlooking the old canal. Wood ducks, great blue heron and belted kingfishers nest along the canal. You

*The mockingbird captured the imagination of the early colonists.*





might surprise a wild turkey or a covey of quail and are almost certain to see muskrat, raccoon and skunk tracks as you peer over the sides of the foot bridges at the sandy slopes of the streams. Turtles sun themselves on the fallen trees in the old canal. An alert birdwatcher will find cardinals, wood thrushes, tufted titmice, chickadees, scarlet tanagers, towhees, brown creepers, wrens, woodpeckers, warblers, vireos, cuckoos, nut-hatches, eastern bluebirds and many others. Last year a visitor from England spotted a sleeping whip-poor-will in an old locust tree.

The canal and trail both end at the Potomac. Benches are provided on the bluff for people to rest while watching herring gulls, geese and ducks. If one is lucky, the highlight of the walk can be a salute from a bald eagle. Our national bird was nesting on Mason's Neck peninsula long before George Mason lived here. In recent times, his presence has done a great deal to protect the entire area from unwanted development, because his nesting sites are protected by conservationists and must not be disturbed.

The walk back from the river takes about 30 minutes, and one enters a new trail to the garden when about halfway up the old Barn-Wharf Trail. In some of the meadows, the boxes of Gunston's Bluebird Trail can be seen. A major effort to help save the eastern bluebird began in 1972, and during 1976 nearly 60 young ones were banded. (The author wrote "Bluebird on my Shoulder," about an orphan she raised, for *VIRGINIA WILDLIFE*'s issue of July 1975.)

Gunston Hall welcomes visitors from all over the world, and many of them take advantage of the extensive fields and forests. Some wish to explore the Plantation on their own. Others—scout troops, school groups, birdwatchers and nature lovers—often make advance reservations for special tours explaining the plantation

(Above Right) Bob Hahn teaches young people how to monitor the bluebird trail. (Below Right) The author and a close friend on the Barn-Wharf Trail. (Below) Blue Boy and scarlet tanagers are at home at Gunston Hall.



life of the Mason family in colonial times and concluding with a guided walk down the old Barn-Warf Trail. Away from city distraction, enjoying the beauty and peace of the woods, one really can appreciate and become aware of how life moved on the old plantations when Virginia was mostly wilderness. Even after two hundred years, mockingbirds still sing down the chimneys.

In late May each year, the Fairfax Symphony gives an evening concert on the lawn at Gunston Hall. Among the hundreds of music lovers who attend, a mocker takes his place on the old pecan tree near the state. Time after time he flings himself into the air, joyously pouring forth melodies that rival the greatest composers. No ecstatic song so freely given could ever be sung from a cage!



# Personalities

Text and Photo by Francis N. Satterlee



**DONALD R. MILLER**  
Assistant Supervising Warden (Education)  
Thomas Jefferson District

Donald R. Miller, "Donnie", was born west of Staunton, Virginia in the Community known as Heaborn Church. His father was a superior craftsman who specialized in the cabinet makers art. The elder Miller had a deep appreciation not only for excellence in his craft, but also in the manner in which mankind maintained stewardship over the environment and things wild. These feelings he passed on to his son.

As Donnie grew and matured, his formal schooling was obtained in the Augusta County school system. His informal education came from many pleasant hours in the streams and fields with his father.

Not long after graduating from Wilson Memorial High in Fishersville, Virginia, young Miller enlisted in the United States Air Force. Following completion of basic training at Sampson AFB, New York, Donnie was sent to Ft. Gordon, Georgia for special training as an Air Policeman. This was followed by a one-year long assignment at Thule AFB, Greenland. Returning from overseas, he was assigned to Greenville AFB, Mississippi where he completed his enlistment and met the young lady that was to become his wife. In 1956 he was discharged, married to the former Joanne Kirby, who was originally from Arkansas, and became employed in Greenville as shipping foreman for a poultry processing plant.

The Millers returned to Virginia in 1959 where Donnie worked first for a grocery chain and then the State Highway Department. In 1962 Miller learned that the Game Commission was seeking Game Wardens. He applied, was accepted and was assigned to duty in Bath County. During November 1966 he was promoted to Area Leader Warden. Promoted again in 1972, this time to his current position as Supervising Warden for Education in the Thomas Jefferson District, the Millers moved to Rockingham County. In his capacity as Educational Supervising Warden, Miller has responsibility for 18 counties in the Shenandoah Valley.

Donnie likes working with people and animals and in the outdoors. But it is the work that he does with the younger generation that really gives him the greatest satisfaction. "For it is with them, properly educated and indoctrinated in the fundamentals of good sportsmanship and conservation, that the future of wildlife and the environment rests."

Donnie and Joanne have three daughters and they make their home in a beautiful section of the "Valley" just outside of Harrisonburg, Virginia.



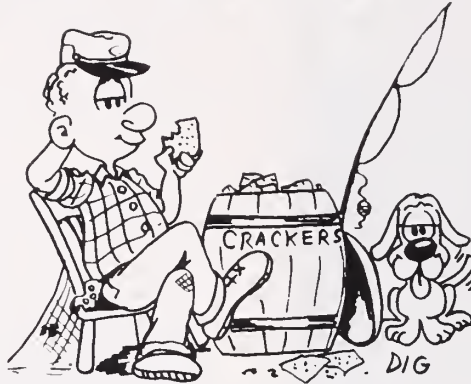
# IT APPEARS TO ME

## BY CURLY

...A PERSON OUGHT TO HAVE ONE!

The United Nations' publishing arm, UNIPUB, has produced a free bibliographical listing of international publications on pulp and paper. Covered are the latest developments in technology and research, forestry methods plus trade statistics on trade and the production of forest products. Additionally, there are facts pertaining to the international state-of-the-art which have been developed through extensive surveys. This information may be helpful in learning just where we all are "heading" tree-wise, world-wide. Write UNIPUB, Box 433, Murry Hill Station, New York, New York 10016.

Those of you that might be doing or contemplating some sort of research project, or are just interested in learning details about our country will be pleased to know that YOUR National Archives is the place where some 130,000 rolls of microfilm have been crammed full of incredible details. There's no telling just what you might run into and those folks have produced a free catalogue which will give you an opportunity to find out just what is available. Write to Microfilm Sales, Department B-15, National Archives and Records Service (NEPS), Washington, D.C. 20408. While you are at it, request a copy of their booklet entitled Documents From America's Past (Reproductions from the National Archives). This "goodie" lists reproductions of documents which are available from the Archives which range from the



Declaration of Independence and Washington's Inaugural Address to Japanese and German World War II Surrender papers.

### ...FOR YOUR BOOKSHELF

If you are Christmas-listing or perchance pondering a purchase which will allow you to avoid the "press of the crowd," consider books either as main gifts or stocking stuffers. There are a number of delightful publications which come readily to mind. For example the paperback entitled HERBS which is the lovingly produced product of the National Colonial Farm. Priced at \$1.00 plus 25 cents for handling, the publication covers herbs which are now grown at the farm that are the same that a farmer's wife would have grown in 1775. Covered also are the uses which that long-ago lady would have made of such delicacies as ANGELICA, BEEBALM, SAINT JOHNSWORT and even WORMWOOD; to mention only a few of forty odd which are described. It's timely, stocking-size and available from National Colonial Farm, Route 1, Box 697, Accokeek, Maryland 20607.

One of the craftiest writers on the national political scene and a person who is widely recognized as a result

of his frequent TV appearances makes his home in Scrabble, Virginia. Well, actually he does more than just live there. . .he is incurably stuck on and maintains an on-going love affair with that section of the Commonwealth. All of this comes out in James J. Kilpatrick's book The Foxes Union which I must tell ya'll, yagottaget. . .or you'll be sorry. It is just full of the things you like to hear about Virginia; the scenery, the animals, domestic and wild, and about all sorts of things that will make you feel good about being alive. The book is illustrated by Richmond News Leader cartoonist Jeff MacNelly, costs \$9.95 and is available from EPM Publications, Inc., Drawer C, McLean, Virginia 22101.

I reckon there have been a million articles and books written on the subject of deer hunting. . .well, sir or madame, add one more, but this one is sorta special. Written by Charley Dickey about whom we have cogitated and commented before, Deer Hunting is one hundred nine pages of practical palaver about this popular sport. Charley has "taken us all by the hand" and carried us through the entire proposition from the planning to the "putting on the table" in a typical Dickey-Do. It is delightful, easily digested and available for \$3.95 from Oxmoor House, P.O. Box 2262, Birmingham, Alabama 35202.

### ...AND THEN

From our house to yours, Merry Christmas.



# Growing Up Outdoors

By Sandy Coleman

## Camera Fun

Matt gathered together the small pile of books and placed them neatly on the table. "That sure was interesting," he said to his five-year-old sister, Amy. Matt had just finished reading about the different kinds of birds to be found in his neighborhood during the winter months.

"Let's go out and try to find some," Matt said to Amy.

Amy nodded her head in agreement and soon the two were walking out in the cold December afternoon. "Matt, how do we look for the birds that we know about?" Amy asked.

"Well, you look very carefully and try to not make a lot of noise when you walk or move too quickly. If you do that you will scare all the birds away," Matt explained.

The two spent several hours looking for birds that afternoon. Amy thought it great fun to try to get as close as she could to the birds. She did, however, laugh gleefully everytime they scattered at her approach.

"The only problem is that you can only see them for a second or two and then they are usually gone," Matt said somewhat sadly. "I sure wish we could look at them more carefully," he added.

"Why don't you take a picture of them?" Amy said.

"That's the way," Matt said excitedly.

Matt began that very day to take pictures of the wildlife around him and of the outdoors in general. When they were developed, he found that it was a lot of fun to try to remember the exact time that he had taken the picture. As he became more familiar with his camera, he wanted to learn more about photography.

He visited his school library and Miss Duncan, the librarian, helped



Illustration by Diane Grant

him to find several books on the subject of photography.

"This is lots of fun, Amy," he said to his attentive little sister. "I sure wish you could take pictures, too." Amy watched Matthew carefully but both brother and sister knew that Amy was too young to be able to handle a camera well.

"I sure wish, though, that I could come up with a way to get closer shots of the birds." Matt thought for several minutes and finally decided upon a way to achieve his purpose.

"I think I will get Dad to put a

bird feeder on the limb right outside my bedroom window. That way, when the birds come there I will be able to take lots of pictures!" Matt enthused.

That proved to be the best idea yet. Matt was able to take many close-up pictures of the different birds that came to his bird feeder.

"I love photography," Matt said to Amy excitedly. "I know you will, too. Well, that is as soon as you are old enough."

Amy nodded her head wistfully in agreement.

## ANNOUNCING CHILDREN'S WILDLIFE PHOTO CONTEST

Send one of your favorite photographs in one or more of the following categories:

1. Nature
2. People in the Outdoors
3. Virginia's Wildlife

Prizes will be \$30 for first place, \$20 for second and \$10 for third place.

Children under 15 are eligible in this special category.

If you have already sent in your entry to the Virginia Wildlife Photo Contest, your photo has already been entered.

Contest Deadline — January 15

Send entries to:

Children's Wildlife Photo Contest  
P.O. Box 11104  
Richmond, Virginia 23230



# THE SCREECH OWL

By JOHN W. TAYLOR

The sudden appearance of an owl, of whatever species, seldom fails to generate a ripple of excitement. Its very presence—ghostlike, spectral, noiseless, quickens the pulse. Smaller birds are hushed, or their songs turn to calls of alarm and distress. The bolder blue jays scream their disdain. Crows flock to dispatch the invader.

And if the sight of an owl so whets the emotions, the sound of one does even more. Especially the cry of the screech owl. A quivering wail, in descending tremolo, it has a spooky, half-human quality. The subtle, almost imperceptible change of pitch, as the notes gradually diminish in volume, imparts an eerie, mournful tone.

Actually, it is the owl's love song, delivered during courtship and nesting, and given, with variations, as a call-note. Often the call is answered, and a regular dialogue ensues, particularly if it is the season for romance.

This mating period may last from March through May. In Virginia, the eggs are usually laid in late March or early April, but clutches have been recorded later. Young may still be in the nest by mid-July.

Any cavity or cranny makes a suitable nesting site. Natural hollows in trunks or branches are frequently chosen, as are old woodpecker excavations. Abandoned houses or farmsheds sometimes have a suitable crevice. One pair of owls even raised a family in an apartment of a martin house—with martins as next door neighbors! So they will use bird boxes set out for them.

Though no effort is made to construct a nest, the bottom of the cavity usually contains feather, fur and other debris. Here are laid the four or five nearly round, unmarked eggs. Incubation requires nearly a month, after which the young need a similar time of growth before leaving.

They are clad in downy white at first; then, in ten days or so, they attain a gray, barred plumage. Nestlings in this stage do not have the "ear" tufts, so prominent in the adults. These growths do not develop until the owlets have assumed full coloration—in three to four months.

This adult plumage, when it is assumed, may be either gray or rufous-red. Not related to age, sex or

season, these color "phases" may be due to an excess of red pigment in some individuals. Neither color seems to predominate in the eastern U.S. nor is there any discernible pattern as regards offspring when the parents are both red or are of mixed color. Apparently when both parents are gray, so are all the young born of the union, evidence that the ancestral stock was of this color.

(In the western U.S. all screech owls are gray, save for in a portion of the northwest. These western birds sound not at all like their counterparts. Their call is a series of low hoots, all on the same pitch.)

The genus *Otus*, to which the screech owl belongs, spreads in an unbroken array across the world, until it reaches the southwest Pacific. The many species live in a variety of habitats, often within a small geographical area. All have the same tendency to dischromatism (color phases).

This tendency may partially explain the wide variation in color found in screech owls. Taxonomists have split them into eighteen races, based largely on subtle color nuances. Conglomerately, they range throughout the U.S., southern Canada and parts of Mexico.

Two of the eighteen forms occur in Virginia. The exact ranges of each have never been determined. The late Dr. J. J. Murray, who studied the matter thoroughly, did establish that the eastern screech owl was the bird of the higher mountains, and that the southern screech owl predominated in Piedmont and Tidewater, but found that there was much overlapping.

Both types are supposed, like all screech owls, to be non-migratory. However, there is certainly an inclination to wander, at least with some individuals. In autumn, when they would be migrating, they turn up in places where they are unknown the rest of the year. Some ornithologists now believe such movements do indicate a real southward migration—a belief supported by recent evidence that owls do make extended flights during spring and fall.

The screech owl has adapted better than most raptors to the loss of habitat. It has even adjusted to suburban life, to a degree, living in cemeteries, golf courses and wooded residential areas. Still, its numbers are down drastically from what they were two decades ago.





JOHN W. TAYLOR



## The Eastern Hemlock

by KIM MAUNEY

The eastern hemlock is a graceful, lacy-foliaged tree of the cool moist forest. The flat needles are round-tipped, 1/3-2/3 inch long, and marked on the lower surface with two pale lines. Needles are narrowed to form short, slender stems that grow from rounded, woody pads on the twigs. Cones are roughly oval, 1/2-3/4 inch long, with scales about as wide as long. The pendant cones are borne on short, slender stalks from the tips of branchlets, usually remaining on the tree until the following spring. Hemlock is remarkably tolerant to shading by overstory trees, and may remain in the understory in natural stands for 25-200 years. The tree is usually 60-70 feet high with a trunk diameter of 2-3 feet.

The beauty mother earth uses to decorate her forest can also be used to decorate your home this Christmas season. The small cones of the tree can be used to make an attractive cone ball that will brighten up and make ready any home for the Yuletide season.

Little material is needed:

- 8 inch styrofoam ball
- 500 straight pins (approx.)
- 500 eastern hemlock cones (approx.)
- 40 inches velvet ribbon

First, soak the cones in water until the scales close tight (approximately thirty minutes). It is best to soak only the number of cones you think you can work with at one setting. After soaking, place the cones on paper toweling and pat dry.

Next, stick a pin through the scales at the bottom of the cone. Then attach the pin with the cone to the ball. (Don't worry, the cones will reopen.) The cones may be pinned to the ball without soaking; however, the pins are not hidden as well beneath the cone.

It is best to experiment by pinning about ten cones to the ball, and allowing them to open. By doing this you will have an idea of how close to pin the closed cones. If pinned too close together, the cones will not open properly. If pinned too far apart, there will be spaces between the cones when they open.

To give the ball support, as you work, place it in a large bowl. Three-fourths of the ball should be visible above the bowl.



Be sure and leave an unpinned space at the top and bottom of the ball for the loop and tassels. The loop can be made by cutting a twelve inch piece of velvet ribbon. Then pin the ends of the loop to the top of the ball. Next, cut three different lengths of the ribbon (4", 5", 6"). Pin the three lengths so they hang freely side by side at the bottom of the ball. Knots may be used to accentuate the end of each ribbon. Now, fill in the space around the loop and tassels with cones.

Of course, any size styrofoam balls may be used. However, let your imagination run free when deciding what type of decorative adornment you would like to use. You may find a calico bow looks nice tied at the bottom of the loop, or bells at the bottom of each tassel may add to the festivities.

Small branches of the hemlock tree can also be used for the Yuletide season. They make lovely center pieces for tables, fireplace mantels, or any arrangement where green foliage is preferred.

Using evergreens, such as the hemlock, at Christmas originated from customs prevalent during Saturnalia, when the Romans ornamented their temples and dwellings with green foliage.

Of course, the most important thing to remember when working with your eastern hemlock is to have fun, enjoy making your own decorations using nature's material, and have a very Merry Christmas.



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